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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/816,090	04/01/2004	Shigeki Nagase	F-8201	9475

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EXAMINER

MAFAHER, NINA YASMIN

ART UNIT PAPER NUMBER

2861

DATE MAILED: 07/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/816,090

Applicant(s)

NAGASE, SHIGEKI

Examiner

Nina Y. Mafaher

Art Unit

2861

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 04/01/2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claim 1-3 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-6 of U.S. Patent No. 6,892,588 in view of Yamaguchi (6,628,343).

With respect to Claims 1-3, Nagase (6,892,588) teaches a torque sensor comprising:

a first shaft (Column 23, line 13);

a second shaft capable of performing relative rotation, elastically with respect to a first shaft (Column 23, lines 14-15);

a first alternating signal source which outputs a first alternating signal the phase of which changes in accordance with change in the rotation angle of a first shaft (Column 23, lines 16-18);

a second alternating signal source which outputs a second alternating signal the phase of which changes in accordance with change in the rotation angle of a second shaft (Column 23, lines 19-22);

an output signal processing section which outputs a phase difference correspondence signal the waveform of which changes in accordance with change in the phase difference between a first alternating signal and a second alternating signal (Column 23, lines 23-27);

a first alternating signal source has a first detector and a first signal processing section (Column 23, 44-45);

a first detector outputs a first sinusoidal amplitude signal expressed by $KE \sin(\omega t)$ $\sin \theta$ and a first cosinusoidal amplitude signal expressed by $KE \sin(\omega t) \cos \theta$ (Column 23, lines 46-51);

a second alternating signal source has a second detector and a second signal processing section (Column 23, 59-60);

a second detector outputs a second sinusoidal amplitude signal expressed by $KE \sin(\omega t) \sin(\theta + \Delta\theta)$ and a second cosinusoidal amplitude signal expressed by $KE \sin(\omega t) \cos(\theta + \Delta\theta)$ (Column 23, lines 61-67);

a value corresponding to the torque transmitted by a first shaft and a second shaft being determined from a phase difference correspondence signal (Column 23, lines 39-41)

a first detector and a second detector are disposed relatively to each other, in such a manner that the phase difference between a first alternating signal and a second

Art Unit: 2861

alternating signal becomes $\pi/2$ when the torque transmitted by a first shaft and a second shaft is zero (Column 24, lines 23-27);

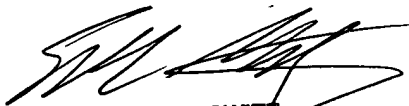
an output signal processing section has a first logic signal conversion circuit for converting the first alternating signal into a first logic signal; a second logic signal conversion circuit for converting the second alternating signal into a second logic signal (Column 23, lines 28-32); and a PWM processing circuit for outputting a PWM signal corresponding to the exclusive OR of a first logic signal and a second logic signal, as a phase difference correspondence signal (Column 24, lines 29-33)

an output signal processing section having a first logic signal conversion circuit for converting a first alternating signal into a first logic signal; a second logic signal conversion circuit for converting a second alternating signal into a second logic signal; (Column 23, lines 28-32); a detection circuit for the rise time of a first logic signal; a detection circuit for the fall time of a second logic signal; and a PWM processing circuit for outputting a PWM signal the rise time of which corresponds to one of either the rise time of a first logic signal or the fall time of a second logic signal, and the fall time of which corresponds to the other thereof, as a phase difference correspondence signal (Column 24, lines 37-45).

With respect to Claim 1, Nagase (6,892,588) teaches the invention set forth above, and further teaches a signal processing section with a phase shift circuit. Nagase fails to disclose a signal processing section wherein a resistor and capacitor function as a low pass and high pass filter. Yamaguchi (6,628,343) discloses a resistor and capacitor functioning as a low or high pass filter for the purpose of delaying the

Art Unit: 2861

phase of a signal by $\pi/4$ and advancing the phase of a signal by $\pi/4$, so that there is a relative phase difference of $\pi/2$ when the signals are added together (Column 18, lines 14-23; Column 4, lines 7 – 13; Figure 1, 25A, 25B). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the phase shifting circuit of Nagase with that of Yamaguchi for the purpose of providing a phase shift control circuit wherein a phase shift amount of an inputting alternating signal can be set more accurately than the method for phase shifting set forth by Nagase, since Yamaguchi teaches it is difficult to form a $\pi/2$ phase shifter that may shift the phase accurately by $\pi/2$, because of an influence of a dispersion of resistance, a dispersion of capacitance and parasitic floating capacitance when an integrated circuit is formed (Column 2, lines 55-63).



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